

WHAT IS CLAIMED IS:

1. An air-fuel ratio control apparatus for an internal combustion engine, comprising:
  - sensor means of various types for detecting operation states of said internal combustion engine installed on a motor vehicle;
  - an air-fuel ratio sensor for detecting an air-fuel ratio of an air-fuel mixture gas supplied to said internal combustion engine;
  - a fuel injector for injecting a fuel contained in a fuel tank into an intake system of said internal combustion engine;
  - a canister for adsorbing a fuel vapor from said fuel tank;
  - a purge control valve for introducing the adsorbed fuel of said canister into said intake system of said internal combustion engine; and
  - an engine control unit for activating said canister and driving said purge control valve on the basis of detection signals of said various sensor means and said air-fuel ratio sensor, wherein said engine control unit is comprised of:
    - acceleration decision means for making decision as to accelerating state of said motor vehicle on the basis of said engine operation state;
    - air-fuel ratio control means for arithmetically determining a fuel injection quantity on the basis of said engine operation state to thereby drive said fuel injector while controlling said air-fuel ratio to a desired value thereof through a feedback control on the basis of said detection signal of said air-fuel ratio sensor;
    - purge control means for driving said purge control valve on the basis of said engine operation state; and
    - fuel correction arithmetic means for arithmetically determining a purge air concentration correcting coefficient for correcting said fuel injection quantity on the basis of the control quantity for said purge control valve validated by said purge control means and said engine operation state, wherein said fuel correction arithmetic means is so

designed as to reset said purge air concentration correcting coefficient to an initial value when said purge air concentration correcting coefficient becomes smaller than a predetermined value inclusive thereof, indicating leanness of said air-fuel mixture and when it is determined that said motor vehicle is in the accelerating state.

2. An air-fuel ratio control apparatus for an internal combustion engine according to claim 1,

wherein said air-fuel ratio control means is so designed as to control an air-fuel ratio feedback correcting coefficient for correcting said air-fuel ratio so that said air-fuel ratio coincides with said desired value; and

wherein said fuel correction arithmetic means is comprised of:

purge quantity arithmetic means for arithmetically determining a purge quantity introduced actually into said intake system on the basis of said control quantity for said purge control valve and said engine operation state;

purge ratio arithmetic means for arithmetically determining a ratio of said purge quantity to an intake air quantity of said internal combustion engine as a purge ratio on the basis of said purge quantity and said engine operation state;

purge air concentration arithmetic means for arithmetically determining a purge air concentration on the basis of said purge ratio and said air-fuel ratio feedback correcting coefficient; and

purge air concentration correcting means for arithmetically determining said purge air concentration correcting coefficient on the basis of said purge ratio and said purge air concentration,

wherein said air-fuel ratio control means is designed to arithmetically determine said fuel injection quantity on the basis of said purge air concentration correcting coefficient.

3. An air-fuel ratio control apparatus for an internal combustion engine according to claim 1,

wherein the initial value of said purge air concentration correcting coefficient is set to 1.0.

4. An air-fuel ratio control apparatus for an internal combustion engine according to claim 1,

further comprising:

initial value setting means for setting variably the initial value of said purge air concentration correcting coefficient so that said initial value can be set to a value which reflects said predetermined value.